ESH and H manual

Environment, Safety, and Health

Volume IV

Part 40: Training

40.2
Environment, Safety, and Health Training and Education

(Formerly H&SM C7)

Recommended for approval by the ES&H Working Group

Approved by:	Robert W. Kuckuck
	Deputy Director for Operations

New document or new requirements

Approval date: October 21, 1999

Minor revision, no new requirements

Approved by: The Hazards Control Department

Approval date: August 27, 2001

Revision 1

Revision 1

40.2

Environment, Safety, and Health Training and Education[*]

Contents

---

[*] Minor revision

40.2

Environment, Safety, and Health Training and Education

1.0 Introduction

The Lawrence Livermore National Laboratory (LLNL) provides a comprehensive training program to meet federal, state, and local laws and regulations, U. S. Department of Energy (DOE) contractual requirements, University of California (UC) policies and guidelines, and Laboratory operational needs. Document 40.1, "LLNL Training Program Manual," in the *ES&H Manual* describes the overall training program, including policies and responsibilities. This document describes one subset of that program—environment, safety, and health (ES&H) education and training at LLNL.

This document contains information on the types of ES&H training, educational requirements, training resources, course enrollment, course development, and responsibilities. It also specifies some mandatory ES&H education and training requirements.

This document applies to all LLNL workers. The term "worker(s)," as used in this document, means individual(s) at LLNL employed by either UC or a Supplemental Labor Company under contract to UC/LLNL, as well as students and guests.

Other contract employees (e.g., construction, consultants) and transient personnel (e.g., repair/service, visitors, DOE, or DOE contractors) may not fall under this document's requirements. Those who require access to potentially hazardous areas or perform tasks involving Laboratory-specific hazards receive the same training as Laboratory employees working in the same area or performing the same tasks. Non-Laboratory-specific ES&H training (such as training required by the Occupational Safety and Health Act or the U.S. Environmental Protection Agency) and the documentation for such training are the responsibility of the contractor or employer.

2.0 ES&H Training Policy

The LLNL policy for Environment, Safety, and Health training is to ensure that all personnel have the training, commensurate with their responsibilities, as required to protect their health and to perform work in a competent, safe, and environmentally sound manner. The training standards will meet or exceed the requirements of the DOE, regulatory agencies, and where appropriate, standards established by industry or professional organizations. The Laboratory will provide all training needed to enable its workers to meet those standards, and it will document the training of all its personnel.

3.0 Training Overview

The Laboratory's ES&H training program encourages workers to think about safety and integrate ES&H into their work planning and execution. Workers are expected to apply their skills and knowledge to provide protection for themselves, fellow workers, LLNL facilities, the public, and the environment.

Training constitutes an administrative control and the training requirements are tailored to the individual's work.

3.1   Methodologies of ES&H Training

All work assignments and activities at LLNL require at least some ES&H training and orientation. Each worker's particular work situation determines the method and depth of this training, which can range from an orientation (informal talk) about an ES&H issue to multiple required ES&H courses. Training also can include comprehensive, advanced-level training tailored to a specific operation or assignment.

The *LLNL Course Catalog* lists all courses offered at LLNL (See 4.1).

ES&H courses fall into several categories, which are summarized below.

Classroom Courses. Numerous ES&H courses are taught in a traditional classroom setting. These classes typically involve an instructor using a stand-up lecture format, often with interactive discussions, demonstrations, videotapes, and exercises. Most classroom courses require pre-enrollment, but some are offered on a drop-in, first-come-first-served basis.

Computer Assisted Instruction (CAI). Computers are used to deliver some course instructions, thereby enabling students to complete training at their own time and pace. Lectures on these courses can often be provided to large groups upon request.

Two types of CAI are available at LLNL:

1. **Computer-Based Training (CBT).** Compact discs (CDs) or laser discs are used for computer-based training, which can be taken at a dedicated CBT Center. The Hazards Control Department operates a CBT Center, located in T2679.

2. **Web-Based Training.** Workers may complete web-based training courses at their computer if it is connected to the Internet via a web browser or at a CBT Center.

Hands-on Training. Some courses are taught in a two-part format that requires students first to attend a lecture (given in a classroom or via CAI) and then to demonstrate "hands-on" skills or knowledge developed during the lecture. Such practical demonstrations of the course are known as "practicals;" both parts must be

completed to receive credit and are usually not given a separate course designator. Occasionally, a course has a companion on-the-job (OTJ) or certification (Cert) course. These courses are required for workers who perform certain jobs, such as operating a crane.

On-the-Job Training (OJT). OJT constitutes "hands-on" training for workers who are new to an area or task. These workers may have a thorough technical background or theoretical understanding of an operation, but require additional training to ensure that they understand the specific details of an operation. To avoid errors that can have significant impact on safety or operations, OJT shall be carefully supervised by a knowledgeable and competent individual. OJT should be conducted so that trainees satisfactorily complete all of the required training objectives and maximize learning from this experience.

Retraining. Certain course information must be updated on a regular basis. Retraining may involve retaking the original course or taking a different abbreviated course specifically developed as a refresher for the original course.

Safety Meetings. Another means of providing worker training is through periodic safety meetings, which can range from five-minute, on-the-job (e.g., tailgate) types, to formal department or division meetings—or anything in between. They may be conducted as one part of general meetings, but all LLNL organizations should have at least one annual department or division safety meeting to review and discuss relevant ES&H topics and issues. These meetings should be appropriately documented with the date, presenters, content, and names of attendees.

3.2 Determining ES&H Training Requirements

Training requirements originate in several different ways. Some requirements apply to particular categories of workers throughout LLNL. This training is usually required by laws, codes, and standards. Such Laboratory-wide requirements are identified in the *LLNL Course Catalog* as Institutional Training Requirements (ITRs). A directorate may specify a training requirement for categories of workers in their organization. These requirements are known as Organizational Training Requirements (OTRs). OTRs are usually specified in directorate management or training plans. In addition, there may be Local Training Requirements (LTRs) that apply only to a particular activity, work area, or type of work. These training requirements may be specified on an Integration Worksheet (IWS) or in an Operational Safety Plan (OSP). Training requirements for a particular facility are in a Facility Safety Plan (FSP).

Each programmatic, facility, and/or payroll directorate determines the ES&H training requirements that apply to the workers working under its direction, on its operations, or in its facilities. The directorate should first determine its requirements, then examine

all ITRs to determine which apply to it, and finally consider whether any new requirements should be implemented. Each directorate shall ensure that the requirements are effectively communicated to its workers, satisfied, documented, and periodically reviewed.

Applicable LTRs, OTRs, and ITRs should be identified and documented as part of work controls in the IWS process (see Document 2.2, "Managing ES&H For LLNL Work," in the *ES&H Manual*. If an OSP is required, all three categories of training requirements should be listed there, as well.

Each directorate's OTRs shall be included in its training implementation plan or other ES&H management plan (known as the training program). The training program or equivalent lists ES&H training, including refresher training, required by the directorate. For more information on training programs, see Document 40.1. Contact your directorate's Training Coordinator for help in determining specific ES&H training requirements.

Exceptions to Institutionally Required Training. In certain rare cases, it may be appropriate to grant a worker an exception to an institutionally required ES&H course. The procedure for granting exceptions from training is described in detail in Document 40.1 and is summarized below.

The supervisor reviews the worker's previous experience, training, and educational background and, when appropriate, formally recommends that an exception from an ITR be granted. The supervisor then completes an Exception from Training form (see Document 40.1 for a copy) and sends it to the appropriate ES&H Teaching Organization (i.e., the Hazards Control Department, the Health Services Department, or the Environmental Protection Department) and the relevant program directorate. The directorate or organization Training Coordinator can assist the supervisor with completing the form and should review the form before it is sent to the Teaching Organization.

Each ES&H Teaching Organization has responsibility for approving ITR training exceptions for courses it sponsors. Document 40.1 requires the ES&H Teaching Organization to use discretion when granting exceptions. If the course is not appropriate under the circumstances, the worker can be granted a waiver. If the worker can prove to the Teaching Organization that another already taken course satisfies the training requirement, the Teaching Organization can certify that the course is equivalent. A worker can also challenge some required courses by proving his/her proficiency based on education, experience, and/or test results.

Exceptions to Non-ITR Training. Requests for exceptions to other training (e.g., OTRs and LTRs) are to be directed by the supervisor to the organization imposing the specific training requirement.

Alternate Courses. In some instances, more than one course may satisfy a training requirement. This information is available in the LLNL Course Catalog or contact the Teaching Organization.

3.3   Implementing ES&H Training

Based on the directorate's training program and all applicable ITRs, OTRs, and LTRs, supervisors shall determine the ES&H training requirements for each worker under their supervision. Supervisors shall ensure, that for projects under their control, all workers supporting their work activities complete all required training courses. The individual supervising the work activity is responsible for ensuring that the safety training necessary to do the work is identified. The organization authorizing the work is responsible for ensuring that the resources necessary for the training are provided. Payroll organizations are to assure that their personnel complete the required training.

Supervisors are encouraged to use the courses offered by ES&H Teaching Organizations as part of their training programs whenever possible. When an existing ES&H course cannot satisfy a training requirement, the ES&H Teaching Organization can develop specialized training to meet specific needs. Consult your ES&H Team for details.

Successful completion of required training shall be recorded in the Livermore Training Records and Information Network (LTRAIN). Document 40.1 describes specific programmatic, facility, or payroll directorate responsibilities with respect to training documentation.

3.4   ES&H Training Records

When workers successfully complete a course, the Teaching Organization records it in LTRAIN. Workers can obtain their training records from their payroll supervisor, training coordinator, or online at:

https://www-ais.llnl.gov/llnl_only/docs/hr/ltrain/

3.5   ES&H Training Resources

The Hazards Control Department's Education and Training Division maintains a library of audiovisual aids (e.g., films, videotapes, slides, and audiocassettes) to enhance informal safety meetings or formal training programs. Additionally, training specialists are available to assist with safety talks and special program preparations and presentations. For more information or a current catalog of available teaching aids, contact the Education and Training Division (ext. 2-1217).

The Environmental Protection Department can also provide training resources on environmental and waste management topics.

The Health Services Department maintains a non-lending library with videos, journals, books, and other electronic media devoted to medicine, health, and health promotion.

Resource needs beyond the scope of your organization or the various ES&H Teaching Organizations should be discussed with the LLNL Training Manager.

4.0 Course Announcements and Enrollment

4.1   Course Announcements

A complete description of current ES&H courses available at LLNL can be found in the course catalog at the following web site:

> https://www-ais.llnl.gov/llnl_only/docs/hr/catalog

In addition to this web site, some course information is published monthly in *Newsline*; the training bulletin insert alerts workers to new or rescheduled courses and to any changes in LLNL training.

4.2   Course Enrollment

To take ES&H courses, applicants should enroll online either through the catalog or through their individual online training plan; instructions are given below. Directorate Training Coordinators can enroll workers who do not have web access or who do not wish to personnally sign up for a particular course. The ES&H Teaching Organizations can enroll both LLNL and non-LLNL individuals in their courses.

To enroll in required courses, workers should use their individual online training plan. Open the web browser and go to the LTRAIN web sites:

> https://www-ais.llnl.gov/llnl_only/docs/hr/ltrain

Enter the section for Training Plan Reports and obtain the correct training plan. Then follow the enrollment instructions.

To enroll in courses *not* required by a worker's training plan, use the online catalog in the web address in Section 3.1. If the desired course has not been scheduled yet, click on the "notify" box. You will be notified when dates for the course are set. If a worker

wishes to be automatically enrolled in a course session when a space becomes available, they can click on the Auto-Enroll box.

For some courses (e.g., CBT and web-based training), pre-registration may not be necessary. For such courses, simply call the Teaching Organization or complete the course online. Consult the catalog for details. The Hazards Control Department web-based training courses can be found online at the following web site:

External Access: http://www-training.llnl.gov/wbt

Internal Access: http://www-hctrain.llnl.gov

Information on Computer-Assisted Instruction offered by the Environmental Protection Department can be found online at:

http://www-epd2.llnl.gov/training/cbt.html

Workers scheduled for a course must notify the Teaching Organization if they cannot attend. "No shows" add costs to the training program and prevent others on the waiting list from attending. Workers who are repeated "no shows" may be referred to the appropriate Associate Director for action.

5.0 ES&H Course Development

Training at LLNL is designed to meet both regulatory and operational needs. Laws, regulations, and DOE contractual requirements sometimes dictate what must be taught and the minimum classroom time. ES&H course development should follow the five-step process (analysis, design, development, implementation, and evaluation) described in Document 40.1. In all instances, training is conducted using the best available training techniques and materials, including classroom instruction and video presentations, as well as computer-assisted, on-the-job, and self-study methods.

5.1 Formal Training

ES&H courses are developed based on sound organizational and instructional practices, which are described in Document 40.1, as well as on the requirements of the *LLNL ES&H Manual.* These courses meet the requirements established in Document 40.1 and, where applicable, standards established by government, industry, or professional organizations. However, the degree to which the five development steps are applied may vary depending on the course's importance to Laboratory operations and the Teaching Organization, as well as the applicable regulatory guidance.

5.2   Safety Meetings

When safety meetings are used to convey safety information, keep a record of the meeting to confirm the event. The record should include the date, subject, acceptable positive identification (such as signatures or magnetic strip readers) of attendees, and the presenter's name.

Both the person conducting the meeting and all presenters should make effective use of the attendees' time. The following five-step process helps ensure that safety meetings are effective:

- PREPARE: Organize your material.

- PINPOINT: Zero-in on one main idea.

- PERSONALIZE: Keep it close to home and meaningful to your group.

- PICTURE: Use visual aids or at least create a mental picture of what you are saying for your listeners.

- PRESCRIBE: Ask your group to use the information from the meeting; then discuss at the next meeting how they used it.

To continue having effective safety meetings, supervisors should solicit ES&H topics from their group and gather ideas from other sources. Potential sources include incident reports, occurrence reports, trade or industry bulletins, DOE bulletins, magazines, newspapers, and other supervisors. Some safety meetings should be devoted to off-the-job topics that workers and their families might encounter while away from work.

6.0 Responsibilities

All workers and organizations shall refer to Document 2.1, "Laboratory and ES&H Policies, General Worker Responsibilities, and Integrated Safety Management" for a list of general responsibilities. This section describes specific responsibilities of LLNL organizations and workers who have key safety roles.

The Laboratory is responsible for providing a safe work environment and ensuring that each worker has the skills, knowledge, and ability (SKA) to perform his/her assigned tasks. Worker training is provided to improve or maintain the SKAs required for a particular work activity. Records of worker training are maintained to ensure that all required training is completed.

6.1 Supervisors

Supervisors who manage work activities shall verify that all workers working under their direction have satisfactorily completed required ES&H training. The required training shall be completed before a worker can perform, unsupervised, any portion of the job assignment requiring the training. (Workers may perform work, for which they have not completed training, under the direct supervision of a trained worker.) As allowed under legal and regulatory constraints, the appropriate Teaching Organization may define limited grace periods for certain courses (i.e., "Course shall be taken within 90 days of assuming responsibility as a Lead Experimenter.").

Payroll supervisors shall review training requirements with their workers at least annually. The training review shall be conducted during the worker's annual performance review and the supervisor should note the worker's success at meeting the training requirements. Training reviews shall occur whenever a change in job assignment occurs that changes those requirements.

6.2 Workers

Workers shall attend and complete all assigned training courses. They are encouraged to meet with their supervisors and managers, at any time, to identify any additional training needed to maintain and improve their ability to perform their work safely and effectively. If a worker must complete an ES&H course as part of his/her job assignment and fails to do so, then the worker shall not perform any unsupervised work that might require knowledge or skills taught in that course.

6.3 ES&H Teaching Organizations

ES&H Teaching Organizations provide formal ES&H institutional and local training, as requested. They monitor federal, state, and local laws, DOE contract requirements, and UC policies for applicable training requirements and notify the LLNL Training Program Committee (TPC) (Section 6.5) of any changes. The committee reviews suggested changes to ITRs and then submits them to the Laboratory Director, or the TPC may approve them if they are minor. Teaching Organizations can also provide specialized programmatic training.

Teaching Organizations document course development and content, update courses when needed, keep class attendance lists, retain course-completion documentation, and furnish appropriate data to LTRAIN. They ensure that their instructors meet the necessary technical and instructional qualifications identified in the Document 40.1. Specific responsibilities for ES&H Training Organizations are described in Document 40.1 and in each directorate's Training Plan.

6.4   Training Coordinators

The Training Coordinator is an organization's contact for education and training needs. Training Coordinators' duties include processing Laboratory forms, answering worker education and training questions, and providing information to management as needed. Training Coordinators should also review training-related forms, such as Exception for Training Requests, career development plans, education assistance forms, external training request forms, and internal course registration forms. Training Coordinators should be familiar with Laboratory education and training policies including information on academic degree and course work programs, internal course enrollment procedures, and external training approval procedures. They should also be familiar with their own organization's guidelines on education and training. Training Coordinators may be assigned additional duties by their directorate, as appropriate, such as administrating LTRAIN within an organization.

6.5   Training Program Committee

The Training Program Committee (TPC) maintains an awareness and overview of the Training Program and resolves issues as appropriate. The Committee approves all changes to Document 40.1. In particular, it reviews and approves the introduction or removal of institutional training requirements, and any substantive changes in the record-retention process or policy.

7.0 Work Standards

Numerous laws and regulations contain ES&H education and training requirements. In addition, various *ES&H Manual* sections, as well as OSPs, FSPs, and Safety Procedures or specifications contain training provisons. The Work Smart Standards Set for LLNL lists the federal, state, and local laws and regulations applicable to LLNL operations. For the most current list of Work Smart Standards which may contain training requirements, see the ES&H home page. Contact your ES&H Team for guidance on unique standards and how they may apply to your facility.

8.0 Resources for More Information

8.1   Online Resources

Schedules for upcoming courses can be found online by querying the Course Catalog. Select the course of interest and click on the 'View Course Schedule' button at the bottom of the page.

https://www-ais.llnl.gov/llnl_only/docs/hr/catalog

Information about the LLNL Training Program can be found online at:

Training/Education button on "Grapevine"

http://www-r.llnl.gov/intranet/007training/training.html

8.2   Contacts

See the ES&H Contact List.